Physics Lib.

CONTENTS

Vol. III—SECTION A

No. 1—January, 1936

PAGE

First Annual Meeting of the Indian Academy of Sciences.—Presidential Address. By C. V. RAMAN, KT., F.R.S., N.L. 1

Unitary Theory of Field and Matter. I. Classical Treatment. Charged Particle with Magnetic Rest-Moment. By MAX BORN 8

The Raman Spectra of Ortho-Phosphoric Acid and Some Phosphates. By C. S. VENKATESWARAN 25

The Occurrence of Furan Derivatives in Volatile Oils—III. β-Clausenan and γ-Clausenan. By B. SANJIVA RAO and K. S. SUBRAMANIAM .. 31

Brucine Sulphate as an Internal Indicator in Titrations with Standard Dichromate Solution. By D. S. NARAYANAMURTHI and T. R. SESHADRI 38

Optic Moments of Organic Molecules in Relation to Crystalline and Magnetic Birefringence. By M. RAMANADHAM 43

Vinogradow's Solution of Waring's Problem (II). By I. CHOWLA .. 51

The Raman Spectra of Some Organic Liquids under High Dispersion and Resolving Power. (Benzene, Toluene, Phenol, Chlorobenzene, Pyridine and Cyclohexane.) By R. ANANTHAKRSHNAN 52

The Diffraction of Light by High Frequency Sound Waves: Part III. Doppler Effect and Coherence Phenomena. By C. V. RAMAN and N. S. NAGENDRA NATH 75

No. 2—February, 1936

Unitary Theory of Field and Matter. II. Classical Treatment. Charged Particle with Electric and Magnetic Moment. By MAX BORN .. 85

The Measurement of the Transmission of Heat by Convection from Insolated Ground to the Atmosphere. By P. K. RAMAN 98

Studies in Thorium Phosphate Gels. By M. U. PARMAR, S. M. MEHTA and MATA PRASAD 107

The Diffraction of Light by High Frequency Sound Waves: Part IV. Generalised Theory. By C. V. RAMAN and N. S. NAGENDRA NATH 119

Molecular Clustering in Liquid Fatty Acids. By R. S. KRISHNAN .. 126

Deformation Frequencies in the Raman Spectra of Linear Molecules: Acetylene. By S. BHAGAVANTAM and A. VEERABHADRA RAO .. 135

Intensities in the Bands of the Violet Cyanogen System. By DR. N. R. TAWDE, B.A., M.SC. (BOM.), PH.D. (LOND.), A.INST.P. (LOND.) .. 140

PAGE

The Absorption Spectra of Some Aromatic Compounds. Part I.—Hydrocarbons. By P. K. SESHAN 148
The Absorption Spectra of Some Aromatic Compounds. Part II.—Quinones and Hydroquinones. By P. K. SESHAN 172
Diamagnetic Susceptibility of Sulphuric Acid-Water Mixture. By B. NAGESHA RAO 188

No. 3—March, 1936

On the Numbers of Ward and Bernoulli. By HANSRAJ GUPTA .. 193
Polarisation of the Raman Bands of Water and Deuterium Oxide. By R. ANANTHAKRISHNAN 201
Antiseptics and Anthelminthics. Part II. A Synthesis of 6-Benzyl-7-hydroxyflavone and 6-*n*-Hexyl-7-hydroxyflavone. By D. R. DHINGRA, HARMINDER LAL UPPAL and K. VENKATARAMAN .. 206
Scattering of Light in Optical Glasses. By R. S. KRISHNAN 211
Gravity Formulæ in Geodesy; Their Precision and Interpretation. By B. L. GULATEE, M.A. (CANTAB.) 221
Derivatives of Salicylic Acid—Part IX. Stability of the Sulphonic Acid Group in the 4-Sulphosalicylic Acid. Part I. Nitration of 4-Sulphosalicylic Acid. By N. W. HIRWE and M. R. JAMBHEKAR .. 236
Studies on the Anisotropy of the Optical Polarisation Field in Liquids. Part I. By B. SUNDARA RAMA RAO 240
Studies on the Anisotropy of the Optical Polarisation Field in Liquids. Part II. By B. SUNDARA RAMA RAO 244
The Alkaloids of Holarrhena Anti-Dysenterica. Part IV. The Occurrence of Two Further New Bases in the Bark of Indian Holarrhena and their Relationship to Conessine and Holarrhimine. By SALIMUZZAMAN SIDDIQUI 249
The Alkaloids of Holarrhena Anti-Dysenterica. Part V. Studies in Holarrhimine. By SALIMUZZAMAN SIDDIQUI and RAFAT HUSAIN SIDDIQUI 257
Derivatives of Salicylic Acid—Part X. Stability of Sulphonic Acid Group in the 4-Sulphosalicylic Acid. Part II.—Bromination of 4-Sulphosalicylic Acid. By N. W. HIRWE and M. R. JAMBHEKAR 261
The Tracks of the α-Particles of Thorium and Its Products. By H. J. TAYLOR, M.Sc., and V. D. DABHOLKAR, M.Sc. 265
On the Theory of Pressure Broadening of Spectral Lines. By EDWIN GORA 272
Ultrasonic Velocities in Some Organic Liquids—Part II. By S. PARTHASARATHY 285
Physical Principles and Applications of Magneto-Chemistry by Prof. S. S. Bhatnagar and Dr. K. N. Mathur. (C. V. RAMAN) .. 290

PAGE

No. 4—April, 1936

Geometrical Inversion in the Acids Derived from the Coumarins. Part II. *Cis to Trans.* By T. R. SESHADRI and P. SURYAPRAKASA RAO .. 293
Ultrasonic Velocities in Liquid Mixtures. By S. PARTHASARATHY .. 297
On a Function connected with the Singular Series. By K. SAMBASIVA RAO 304
The Raman Spectrum and Electrolytic Dissociation of Selenic Acid. By C. S. VENKATESWARAN 307
The Neutrino Theory of Light. By MAX BORN and N. S. NAGENDRA NATH 318
On the Error Term in a Certain Sum. By M. L. N. SARMA, B.A. (HONS.) 338
Pillai's Exact Formula for the Number $g(n)$ in Waring's Problem. By S. CHOWLA 339
Pillai's Exact Formula for the Number $g(n)$ in Waring's Problem. By BROJOMOHAN PADHY 341
On the Band Systems and Structure of SiF. By R. K. ASUNDI and R. SAMUEL 346
The Design of Falls with Reference to Uplift Pressure. By GURDAS RAM, M.SC., and V. I. VAIDHIANATHAN, D.SC., F.INST.P. .. 360
Studies on the Anisotropy of the Optical Polarisation Field in Liquids—Part III. By B. SUNDARA RAMA RAO 369
Variation of Intensity of Scattered Light with Temperature. By CH. V. JOGARAO 377
Refractivity and Magnetic Birefringence of Liquid Mixtures. By M. RAMANADHAM 384

No. 5—May, 1936

Absorption Spectra of Tetra-Alkyl Ammonium Salts. Contributions to the Theory of Co-ordinate Linkage IX. By SH. NAWAZISH ALI and R. SAMUEL 399
Magnetic Susceptibilities of Some Organic Compounds in Different Physical States. By K. C. SUBRAMANIAM 420
Magnetic Studies of Sulphur and Some Sulphur Compounds. By P. S. VARADACHARI and K. C. SUBRAMANIAM 428
Vortex Motion in Rectangular Cylinders. By B. R. SETH 435
Diffraction of Light by Ultrasonic Waves. By S. PARTHASARATHY .. 442
Neutrinos and Light Quanta. By N. S. NAGENDRA NATH 448
The Diffraction of Light by High Frequency Sound Waves: Part V. General Considerations—Oblique Incidence and Amplitude Changes. By C. V. RAMAN and N. S. NAGENDRA NATH 459
Electronic Configuration and Bond Energy. By R. K. ASUNDI and R. SAMUEL 466

PAGE

Ultrasonic Velocities in Organic Liquids. Part III.—Esters and Ethers. By S. PARTHASARATHY 482

On the Absorption Spectra and Linkage of Inorganic Nitrates and Sulphates in the Vapour State. By MOHD. ISRARUL HAQ and R. SAMUEL 487

No. 6—June, 1936

Lipins of Fenugreek (*Trigonella fœnum græcum.*). By B. N. SSTRI, M.Sc., A.I.C., A.I.I.Sc., and M. SREENIVASAYA, B.A., F.I.I.Sc. .. 513

Ultrasonic Velocities in Organic Liquids. Part IV.—Halogen Compounds. By S. PARTHASARATHY 519

Upon Some New Results in the Domain of Non-Linear Mechanics. By PROF. DR. N. KRYLOFF and PROF. DR. N. BOGOLIÜBOFF .. 523

The Raman Spectra of Propylene and Iso-Butane. By R. ANANTHAKRISHNAN 527

The Raman Spectra of Selenious Acid and Its Sodium Salts. By C. S. VENKATESWARAN 533

Resonance Curves for a Quartz Oscillator Immersed in Liquids. By S. PARTHASARATHY 544

Rotational Analysis of the Ångström Bands at λλ 6080 and 6620 Å.U. By R. K. ASUNDI 554

On the Dissociation Energy of Carbon Monoxide. By R. K. ASUNDI and R. SAMUEL 562

Dispersion of Depolarisation of Rayleigh Scattering. Part I.—Fatty Acids. By R. S. KRISHNAN 566

On the Structure and Optical Characters of the Nacre in Iridescent Shells.—Part I. By V. S. RAJAGOPALAN 572

The Physical Identity of Enantiomers. Part II. (*a*) The Rotatory Dispersion of *d*-, *l*- & *dl*-forms of Iso-nitrosocamphor and their Sodium Derivatives. (*b*) The Differences in the Physiological Action of *d*-, *l*- & *dl*-forms of Sodioisonitrosocamphor. By BAWA KARTAR SINGH and SHEONATH PRASAD 586

Diffraction of Light by Ultrasonic Waves—Part II. Reflection and Transmission Phenomena. By S. PARTHASARATHY 594

Doppler Effect in Light Scattering in Liquids. Part III.—Polarisation of Light Transversely Scattered by Formic and Acetic Acids. By B. V. RAGHAVENDRA RAO 607